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Human Capital, Social Capital, and the Sustainability of Rural Communities: An Empirical Examination in Rural Indonesia

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Abstract

Rural communities in Indonesia are experiencing rapid socio-economic transitions driven by agricultural modernization, tourism expansion, and shifting livelihood structures. Understanding how internal community assets, particularly human capital and social capital, shape these transitions is essential for advancing sustainable development. This study investigates the roles of human and social capital in enhancing rural sustainability and community well-being, framing the analysis within the United Nations Sustainable Development Goals (SDGs). Using a mixed-methods approach that integrates Partial Least Squares Structural Equation Modeling (PLS-SEM; n = 214) with qualitative field insights, the study compares two contrasting village contexts: an agritourism community (Sidomulyo Village) and an organic-farming community (Lombok Kulon Village). Findings indicate that human and social capital significantly shape rural sustainability through distinct, context-dependent development pathways. In agritourism village settings, social capital (R^2 = 0.46 (Lombok Kulon) and 0.29 (Sidomulyo))—manifested through trust, shared norms, and cooperative networks—serves as the primary driver supporting SDG 8 (Decent Work and Economic Growth) and SDG 11 (Sustainable Cities and Communities) by fostering collective governance and diversified local economies. In contrast, the organic-farming community relies more strongly on human capital—agricultural knowledge, skills, and adaptive capacities, which reinforces food security and ecological resilience in alignment with SDG 2 (Zero Hunger) and SDG 12 (Responsible Consumption and Production). The model explains 57% of community-welfare variance in Lombok Kulon and 64% in Sidomulyo. The study contributes theoretically by linking capital formation to rural transformation pathways and provides policy-relevant insights for community empowerment, sustainable rural development.

Keywords

Social capital; Human capital; Community well-being; Sustainable rural development; SDGs

Introduction

Rural communities are vital to food security, cultural heritage, and environmental sustainability, yet face mounting challenges due to urbanization, labor shifts, and market integration, which have eroded traditional livelihoods and underscored the importance of intangible assets like social and human capital for adaptive resilience (Aquino, Lück and Schänzel, 2018; Bozdaglar, 2023; Coleman, 1988; Putnam, 1993). In resource-limited areas, trust, skills, and social networks are critical to sustaining wellbeing, particularly where access to financial and natural assets is constrained (Ryan *et al.*, 2025; Zhang *et al.*, 2021). In response, Southeast Asian rural development has emphasized livelihood diversification through community-based tourism (CBT), agritourism, and organic farming to promote local identity and participatory governance (Akbar *et al.*, 2021; Hidayattuloh, Bambang and Amirudin, 2020). However, outcomes vary across Indonesian villages due to disparities in institutional capacity, managerial competence, market access, and governance quality, often limiting benefits to more capable actors while excluding others (Auliah *et al.*, 2024; Khalid *et al.*, 2019; Yamagishi, Gantalao and Ocampo, 2021).

Livelihood initiatives are often shaped by two contrasting development logics: collective models emphasizing community ownership and equitable benefit-sharing, and market-oriented models focusing on efficiency and individual gains (Khalid *et al.*, 2019; Pramanik, Ingkadijaya and Achmadi, 2019; Zhang *et al.*, 2021). Collective approaches tend to foster trust, collaboration, and social cohesion, thereby enabling more sustainable management of tourism and agricultural resources (Auliah *et al.*, 2024; Hamid, Anuar and Ahmad, 2023; Ryan *et al.*, 2025). Meanwhile, market-driven systems may accelerate income generation but often lead to social fragmentation and unequal distribution of benefits (Khalid *et al.*, 2019; Zhang *et al.*, 2021). The divergence in outcomes highlights why similar interventions may yield different levels of community wellbeing across villages. These variations are influenced by the interplay of social capital—expressed through bonding, bridging, and linking networks—and human capital, which comprises skills, education, and knowledge. Social capital reinforces local governance and collective resilience during crises, while human capital enhances households' ability to diversify, innovate, and engage in emerging rural economies (Ditta-Apichai, Kattiyapornpong and Gretzel, 2020; Hidayat *et al.*, 2023; Ryan *et al.*, 2025). When combined effectively, these capitals generate synergistic effects, increasing adaptability, accelerating recovery, and improving overall well-being. (Hidayat *et al.*, 2023; Zaiats *et al.*, 2022).

Despite growing interest in rural development, three important gaps remain in the Indonesian context. First, few studies explicitly examine how the interplay between social and human capital shapes community well-being across mixed farming–tourism systems (Auliah *et al.*, 2024; Pramanik, Ingkadijaya and Achmadi, 2019; Ryan *et al.*, 2025). This is especially true when well-being is conceived as a multidimensional construct encompassing economic security, social cohesion, and environmental sustainability—where income diversification and local empowerment enhance economic resilience, social capital fosters trust and collective action, and ecologically responsible practices support long-term community and environmental health (Arizkha *et al.*, 2023; Auliah *et al.*, 2024; Prayitno *et al.*, 2023). This integrated framework

directly supports global sustainable development efforts, aligning with the goals of SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), and SDG 11 (Sustainable Cities and Communities). Second, comparative empirical evidence contrasting collective organic farming villages with market-oriented agritourism villages is limited (Hidayattuloh, Bambang and Amirudin, 2020; Prakasa, Danar and Fanani, 2019; Yamagishi, Gantalao and Ocampo, 2021). Third, there is a lack of structural models that test pathways and mediation mechanisms, such as whether social capital channels the influence of human capital on well-being (Ditta-Apichai, Kattiyapornpong and Gretzel, 2020; Hamid, Anuar and Ahmad, 2023). Addressing these gaps is essential for understanding how intangible assets translate into tangible improvements in livelihood sustainability.

This study addresses these issues by comparing two contrasting rural systems: collective organic farming in Lombok Kulon and market-oriented agritourism in Sidomulyo. Lombok Kulon and Sidomulyo have been active participants in various national-level award programs. Lombok Kulon has been designated as a pilot site for organic farming development in Bondowoso Regency, East Java, and has received a national award in an open organic farming competition. Similarly, Sidomulyo has been nationally recognized for achievements in the tourism sector. These recognitions reflect each village's consistent commitment to broader development efforts aimed at enhancing community wellbeing.

Using a mixed-method approach that integrates PLS-SEM, multi-group analysis, and qualitative validation, we develop a structural model linking human capital, social capital, and community wellbeing (Hair *et al.*, 2021; Henseler, 2018; Prayitno *et al.*, 2025a; Ryan *et al.*, 2025). The study contributes: (i) a comparative, capital-based explanatory model of rural wellbeing; (ii) evidence of context-dependent mediation by social capital; and (iii) policy insights for strengthening rural cooperatives, BUMDes, and targeted capacity-building programs (Auliah *et al.*, 2024; Ditta-Apichai, Kattiyapornpong and Gretzel, 2020; Zhang *et al.*, 2021). Guided by these objectives, the study investigates: (i) how human and social capital jointly shape community wellbeing; (ii) whether social capital mediates the relationship between human capital and wellbeing; and (iii) whether these structural relationships differ between collective farming and agritourism contexts. Five hypotheses are proposed to explain the direct, indirect, and context-specific effects among these constructs.

Theoretical and Analytical Framework

The relationship among social capital, human capital, and community wellbeing in rural settings is rooted in interdisciplinary theories from sociology, development studies, and rural tourism. Social Capital Theory emphasizes the role of networks, trust, and norms in fostering cooperation and collective action (Coleman, 1988; Putnam, 1993) while Human Capital Theory highlights how education and skills enhance individual productivity and social engagement. In integrated rural economies, particularly those combining agriculture and tourism, the synergy between these capitals becomes central to community resilience and wellbeing (Auliah *et al.*, 2024; Sarjiyanto, 2022).

This study adopts the Community Capitals Framework (CCF) to explore how social and human capital interact to influence sustainable rural development. Human capital investments, such as vocational training and entrepreneurship, yield the greatest impact when supported by social cohesion, trust, and collective action, allowing communities to innovate and manage tourism and agricultural resources effectively (Flora, 2016; Pretty, 2003; Ryan *et al.*, 2025). Social capital thus mediates the transformation of individual skills into broader community gains, particularly in cooperative settings such as agritourism and organic farming. To operationalize this, community wellbeing is defined as a multidimensional construct comprising economic security, social cohesion, and environmental sustainability. Economic well-being relates to livelihood diversity, income stability, and resilience fostered by local enterprises (Arizkha *et al.*, 2023; Auliah *et al.*, 2024), while social cohesion includes trust, participation, and reciprocity that support collective decisions and quality of life (Iqbal, Hussain and Siddique, 2022; Sarjiyanto, 2022). Environmental well-being reflects sustainable resource use, cultural identity, and long-term satisfaction (Hidayattuloh, Bambang and Amirudin, 2020; Prayitno *et al.*, 2023). Together, these dimensions frame the role of intangible assets in achieving inclusive, resilient rural well-being and align with global goals such as SDG 1, 2, 8, and 11.

Social capital, encompassing trust, norms, and networks, plays a critical role in rural development by fostering collaboration, facilitating shared initiatives, and enabling knowledge exchange. Trust builds confidence in cooperative behavior among local actors, while shared norms encourage civic responsibility and participation in programs such as organic certification or tourism planning. Networks, both formal and informal, contribute to collective marketing and resilience, reinforcing the social cohesion necessary for sustaining community wellbeing (Arizkha *et al.*, 2023; Auliah *et al.*, 2024; Zhang *et al.*, 2021). Human capital strengthens this dynamic by equipping individuals with the skills, education, and organizational capacity needed to innovate and lead in rural tourism and sustainable agriculture. Empirical findings from Sidomulyo and Lombok Kulon reveal how trained individuals often initiate collective improvements, showing that human capital benefits extend beyond the individual to the broader community (Auliah *et al.*, 2024; Ryan *et al.*, 2025). Notably, social capital mediates the impact of human capital, as strong community cohesion enhances the translation of individual competencies into collective wellbeing, particularly in agritourism and farming contexts where coordination and trust are vital (Deng *et al.*, 2024; Ditta-Apichai, Kattiyapornpong and Gretzel, 2020).

Comparative evidence suggests that the interaction of social and human capital varies across rural development models, influencing well-being outcomes. In market-oriented agritourism contexts like Sidomulyo, high levels of human capital may be undermined by weak social cohesion, leading to fragmented participation and unequal benefit distribution (Khalid *et al.*, 2019; Yamagishi, Gantalao and Ocampo, 2021). Conversely, in collective organic farming systems such as Lombok Kulon, strong trust and cooperative norms channel human capital into inclusive initiatives, enhancing community resilience and wellbeing (Ditta-Apichai, Kattiyapornpong and Gretzel, 2020; Ryan *et al.*, 2025; Sarjiyanto, 2022). This study builds on such insights by adopting a capital-based model that positions social capital as both a product of human capital investment and a mediator linking human capital to community wellbeing (Auliah *et al.*,

2024; Sarjiyanto, 2022; Utomo *et al.*, 2022). Aligned with the Community Capitals Framework and sustainable livelihoods perspectives (Scoones, 1998; Flora, 2016), the model is empirically tested using PLS-SEM to assess direct, indirect, and context-specific effects across the contrasting cases of Lombok Kulon and Sidomulyo. The analysis is guided by five hypotheses that examine how these capitals jointly shape wellbeing and vary across collective and market-driven rural systems.

Methodology

Research Design

This study employed a comparative mixed-methods design to examine the interrelationships among social capital, human capital, and community wellbeing across two contrasting rural contexts in East Java, Indonesia. Lombok Kulon Village in Bondowoso Regency represents a collective organic farming system, whereas Sidomulyo Tourism Village in Batu City operates under a market-oriented agritourism economy. The contrasting institutional and economic configurations of these sites enable a nuanced cross-contextual analysis of how different capital structures shape wellbeing outcomes (Ditta-Apichai, Kattiyapornpong and Gretzel, 2020; Ryan *et al.*, 2025). The integration of quantitative and qualitative approaches follows contemporary sustainability research that emphasizes methodological pluralism to capture multidimensional rural dynamics (Brugulat-Panés *et al.*, 2023; Martin *et al.*, 2022).

Description of the Study Area

Lombok Kulon and Sidomulyo are rural villages in East Java Province, Indonesia, characterized by lowland terrain and a tropical monsoon climate. The area is predominantly agricultural, with farming as the main livelihood. Land use is dominated by crop fields, home gardens, and small plantations, while natural vegetation is limited. Seasonal rainfall strongly influences agricultural activities, water availability, and environmental conditions in the area.

Lombok Kulon village covers 302.57 hectares and is bordered by Tumpeng to the north, Lombok Wetan to the east, Jebung Lor to the south, and Jumpong to the west. The village consists of six hamlets: Pasar, Krajan Selatan, Krajan Utara, Wonosroyo Timur, Wonosroyo Tengah, and Wonosroyo Barat. At an elevation of 420 metres above sea level and with average annual rainfall of 132.4 mm, the village has abundant water resources, making it suitable for organic agriculture. Lombok Kulon represents a collective livelihood model centered on cooperative-based organic rice farming, encompassing approximately 105 hectares of certified organic farmland managed through shared labor and environmentally grounded practices (Nisak *et al.*, 2025).

Sidomulyo Village, located about 8 kilometers from Batu City and covering 270.821 hectares, consists of three hamlets—Sukorembug, Tinjumoyo, and Tonggolari—and is situated at an altitude of 1,652 metres with a cool climate (8–23°C). Known as the "Flower Tourism Village," most residents earn their livelihood from ornamental plant farming, making the village a center for both cut and decorative flower cultivation. In addition to horticulture, Sidomulyo has expanded its tourism potential through the

promotion of local wisdom, such as traditional batik making, as well as the development of adventure and educational tourism, offering visitors a serene natural setting alongside hands-on learning about ornamental plant care (Rahmawati *et al.*, 2024). Thus, Sidomulyo Tourism reflects a semi-urban rural system characterized not only by ornamental plant cultivation but also by tourism services and small-scale entrepreneurship. These diverse livelihood strategies provide a strategic basis for comparing how collective-based and market-driven environments influence the development and use of social and human capital within the community (Auliah *et al.*, 2024; Hidayat *et al.*, 2023).

Sampling Strategy

Quantitative data were collected via structured questionnaires administered to household heads (HHs), who typically possess comprehensive knowledge of household livelihood strategies and community participation. In Lombok Kulon, 165 respondents were selected using purposive sampling to include individuals actively engaged in organic certification and cooperative programs. In Sidomulyo, 307 respondents were selected from a population of 2,690 households through proportional random sampling across Tinjumuyo, Tonggolari, and Sukorembug hamlets, based on the Isaac and Michael (1981) formula with a 5% margin of error.

The difference in sample sizes does not pose an obstacle to analysis. Structural Equation Modeling (SEM) requires a minimum sample size of 100–200, indicating that both villages meet the minimum requirement. Moreover, Partial Least Squares (PLS) can be applied in SEM analyses with smaller sample sizes of just 30–50 respondents (Rahadi, 2023). This flexibility also extends to the Multi-Group Analysis (MGA) conducted in the study. To ensure the absence of bias, the analysis was carried out in two stages: a preliminary test and the main analysis. The preliminary test involved checking for missing data, detecting outliers, and conducting tests for validity, reliability, and normality. This step aimed to confirm that the data and sample were appropriate and to minimize potential bias. Meanwhile, the main SEM analysis consisted of model conceptualization, assessment of model fit, and testing of both the structural and measurement models to answer the research questions and develop a comprehensive model. This stratified approach ensured representation across key socio-economic clusters and minimized sampling bias, consistent with best practices in rural tourism studies (Auliah *et al.*, 2024; Sucandrawati *et al.*, 2024).

Measurement of Constructs All latent constructs were operationalized reflectively using multi-item Likert scales (1 = strongly disagree to 5 = strongly agree). Social capital indicators captured trust (e.g., reliability of leaders), shared norms (e.g., reciprocity), and network participation (Arizkha *et al.*, 2023; Henseler, 2018). Human capital indicators measured education, training participation, and entrepreneurial competence, while community wellbeing encompassed economic, social, and environmental satisfaction.

The questionnaire underwent translation and back-translation procedures, supplemented by expert validation and pretesting with 30 respondents to ensure cultural relevance and clarity. Internal consistency was assessed using Cronbach's Alpha (CA) and Composite Reliability (CR), with thresholds > 0.70, while convergent validity was evaluated using

AVE > 0.50. Discriminant validity was confirmed using the HTMT ratio (<0.85), and model fit was assessed using SRMR (<0.08) (Hair *et al*., 2021).

Analytical Techniques

Quantitative analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS 4. PLS-SEM is particularly appropriate for exploratory research, complex mediation models, and datasets that violate multivariate normality assumptions (Ali *et al.*, 2018; Handiman *et al.*, 2024). The analysis followed two stages:

1. Measurement model evaluation
   – Indicator reliability (loadings)
   – CA, CR, AVE
   – HTMT discriminant validity
   – SRMR model fit
2. Structural model evaluation
   – Path coefficients (β), effect sizes (f^2), significance (t, p)
   – Coefficient of determination (R^2)
   – Predictive relevance (Q^2) via blindfolding
   – PLS Predict for out-of-sample predictive accuracy

Bootstrapping with 5,000 resamples assessed the significance of direct and indirect effects. Common method variance (CMV) was examined using Harman's single-factor test and full collinearity VIF values (<3.3). Inner collinearity was considered acceptable at VIF < 5.

To compare structural relationships between the two communities, Multi-Group Analysis (MGA) was employed. Before MGA, the Measurement Invariance of Composite Models (MICOM) procedure tested configural invariance, compositional invariance, and equality of composite means and variances. MGA results were interpreted only when invariance was established, with significance determined using Δβ and corresponding p-values (<0.05) (Dergan *et al.*, 2022; Schmidt-Scheele *et al.*, 2021). Sensitivity analyses and alternative model specifications (e.g., removing the direct HC → WB path) were used to confirm robustness.

Mixed-Method Integration and Qualitative Validation

To complement and contextualize the quantitative findings, qualitative data were collected through semi-structured interviews, focus groups, and participant observation with village leaders, cooperative managers, tourism operators, and residents. Thematic analysis identified patterns related to trust, cooperation, and capacity-building (Auliah *et al.*, 2024; Martin *et al.*, 2022). Following mixed-methods best practice, integration used a joint display approach that juxtaposed PLS-SEM outputs (e.g., H1–H4 path strengths) with qualitative themes to highlight convergence, divergence, and explanatory depth (Jorge *et al.*, 2016; Liu and Lu, 2024). An audit trail, member checking, and peer debriefing enhanced reliability and interpretive validity (Giggins *et al.*, 2024).

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee of Universitas Brawijaya. Participation was voluntary, with informed consent obtained from all respondents. Personal identifiers were removed from transcripts and datasets to protect confidentiality and ensure compliance with international ethical standards for social science research.

Results

Demographic and Socio-economic Characteristics

The demographic and socio-economic profiles of respondents in Lombok Kulon and Sidomulyo reveal meaningful contextual contrasts relevant to the analysis of human and social capital. Table 1 presents these differences clearly. In both villages, the majority of respondents are male household heads in their productive years (30–49), with fewer younger respondents—reflecting youth migration trends. The high proportion of residents living in the villages for more than a decade suggests strong place attachment and sustained engagement in local social systems, which may influence social-capital formation. The table also outlines education levels across both sites. Notably, the higher educational attainment in Sidomulyo likely results from its proximity to urban centres and its tourism-driven economy, which demands a more diverse skill set. This spatial advantage potentially enhances the village's human capital profile, providing it with a comparative edge in adaptability and innovation.

Tabel 1. Demographic and Socio-economic Characteristics of Respondents in Lombok Kulon and Sidomulyo

Characteristic	*Category*	*Lombok Kulon (n = 165)*	*Sidomulyo (n = 307)*	*Description / Key Observations*
Gender	Male	62%	58%	The majority of respondents in both villages are male household heads actively engaged in agriculture or tourism.
	Female	38%	42%	Women often play supporting roles in household and tourism-related activities.
Age Group (years)	< 30	12%	9%	Younger respondents are fewer, reflecting youth migration to cities.
	30–49	51%	47%	Productive-age group dominates both samples.
	≥ 50	37%	44%	Elderly respondents have strong community involvement but lower participation in training.
Education Level	Primary school or below	26%	15%	Education level in Sidomulyo is generally

Characteristic	*Category*	*Lombok Kulon (n = 165)*	*Sidomulyo (n = 307)*	*Description / Key Observations*
				higher.
	Junior high school	33%	28%	Secondary education is common, especially in Lombok Kulon.
	Senior high school	29%	40%	The highest proportion in Sidomulyo reflects urban proximity.
	College/University	12%	17%	Human capital is relatively higher in Sidomulyo.
Occupation	Farmer	58%	22%	Dominant in Lombok Kulon with organic farming as the main livelihood.
	Tourism service (guide, seller, homestay, etc.)	14%	36%	Tourism-related jobs are more prevalent in Sidomulyo.
	Laborer / Others	28%	42%	Non-agricultural activities (crafts, trade) are common in Sidomulyo.
Monthly Income (IDR)	< 1,500,000	32%	19%	Income disparity is wider in Lombok Kulon.
	1,500,000–3,000,000	41%	46%	Most respondents fall in this range.
	> 3,000,000	27%	35%	A higher proportion of high-income households in Sidomulyo.
Length of Residence (years)	< 10	8%	10%	The majority are long-term residents in both villages.
	10–30	48%	54%	Stable community attachment.
	> 30	44%	36%	Reflects generational continuity, especially in Lombok Kulon.
Primary Livelihood Orientation	Agriculture	65%	27%	Lombok Kulon depends on collective organic farming.
	Agritourism / Services	15%	49%	Sidomulyo integrates ornamental plant farming with tourism.
	Others	20%	24%	Small enterprises and trade activities complement rural income.

While the occupational and income structures are well-documented in the table, a noteworthy insight is how these economic patterns align with each village's livelihood orientation. Lombok Kulon's dependence on organic farming reflects a more collective and agrarian model, whereas Sidomulyo's diversified economy, combining agriculture, tourism services, and small-scale enterprises, points to a market-integrated rural structure. Lastly, although the length of residence data appears similar, the implications differ. In Lombok Kulon, generational continuity may reinforce traditional knowledge

systems and collective practices. In contrast, Sidomulyo's relatively recent influx of residents may bring more dynamic forms of social interaction, influencing how social capital is formed and mobilized in commercially driven contexts.

Comparison of Social and Human Capital between Village Types

Descriptive comparisons indicate that the two villages differ in the configuration of social and human capital. In Lombok Kulon, participation in farmer groups, cooperatives, and organic certification programs is relatively high, reflecting a stronger emphasis on collectively organised activities. Trust in local leaders and cooperative management structures also scores relatively high, suggesting dense internal networks. In Sidomulyo, respondents report more diverse forms of participation, including tourism-related associations, informal business networks, and linkages with external actors such as traders and visitors. Training attendance in Lombok Kulon is more strongly oriented toward agricultural and ecological practices, whereas in Sidomulyo it is more strongly associated with tourism, hospitality, and marketing skills. Overall, both villages display substantial levels of human and social capital, but with differing emphases that mirror their economic orientations.

Measurement Model Evaluation

The evaluation of the reflective measurement models for Lombok Kulon and Sidomulyo demonstrates satisfactory reliability and validity. As detailed in Table 2, all constructs across both villages surpassed the standard thresholds for internal consistency and convergent validity, with Composite Reliability (CR) values exceeding 0.70 and Average Variance Extracted (AVE) values above 0.50. These outcomes suggest that the indicators used in measuring social capital, human capital, and community well-being consistently reflect the intended latent variables. The indicator loadings across all constructs fell within acceptable thresholds, confirming the reliability of each indicator. In addition, the consistently high CR and CA values observed in both villages indicate a strong level of internal consistency within each construct. Together, these results strengthen the overall measurement model and support the robustness of the constructs across different socio-economic contexts.

Discriminant validity was further confirmed using the Heterotrait-Monotrait Ratio (HTMT), where all construct pairs recorded values below the 0.85 threshold. This indicates that the constructs are empirically distinct and measure different theoretical concepts as intended. Additionally, model fit was verified using the Standardized Root Mean Square Residual (SRMR), with values below 0.08 for both villages, further supporting the adequacy of the measurement models.

Structural Model Results

Structural relationships among human capital (HC), social capital (SC), and community wellbeing (WB) were then examined. Table 3 reports the standardized path coefficients (β) and explained variances (R^2) for both villages. In both Lombok Kulon and Sidomulyo, HC → SC paths are positive and significant, indicating that higher levels of education, training, and skills are associated with stronger social capital. The SC → WB paths are

also positive and significant in both villages. The direct HC → WB path is not significant in Lombok Kulon but is positive and significant in Sidomulyo. For Lombok Kulon, the model explains 46% of the variance in social capital and 57% of the variance in community wellbeing. For Sidomulyo, the model explains 29% of the variance in social capital and 64% of the variance in community wellbeing. These R^2 values indicate moderate to substantial explanatory power, with stronger prediction of well-being outcomes in the tourism-based village context.

Tabel 2: Outer Model Results (Lombok Kulon and Sidomulyo)

Construct	*Indicators (Valid Items)*	*Loading Range*	*Cronbach's Alpha (CA)*	*Composite Reliability (CR)*	*AVE*
Social Capital (Lombok Kulon)	Trust, Norms, Networks	0.63–0.86	0.87	0.91	0.59
Human Capital (Lombok Kulon)	Education, Training, Skill	0.70–0.88	0.85	0.90	0.65
Community Well-being (Lombok Kulon)	Economic, Social, Environmental	0.68–0.83	0.84	0.88	0.61
Social Capital (Sidomulyo)	Trust, Norms, Networks	0.71–0.85	0.88	0.92	0.63
Human Capital (Sidomulyo)	Education, Training, Innovation	0.73–0.87	0.86	0.91	0.66
Community Well-being (Sidomulyo)	Economic, Social, Environmental	0.69–0.84	0.83	0.89	0.62

Note: All constructs satisfied CA > 0.70, CR > 0.70, AVE > 0.50, and HTMT < 0.85 criteria, confirming internal consistency and discriminant validity.

Tabel 3. Multi-group Structural Model Comparing Relationships among Social Capital, Human Capital, and Community Well-being in Lombok Kulon and Sidomulyo Villages

Path	*Lombok Kulon (β, p)*	*Sidomulyo (β, p)*
HC → SC	0.68***	0.54***
SC → WB	0.61***	0.47***
HC → WB	0.12 (ns)	0.36**
R^2 (SC)	0.46	0.29
R^2 (WB)	0.57	0.64

*Note: ***p < .001,* *p < .01, ns = not significant.

The model explains 57% of community well-being variance in Lombok Kulon and 64% in Sidomulyo, demonstrating high explanatory power. These values exceed commonly accepted thresholds for social science research, suggesting that the proposed

relationships among human capital, social capital, and wellbeing are theoretically meaningful and empirically robust.

Inner Model and Explanatory Power

The strength and significance of the structural relationships were further assessed using bootstrapping with 5,000 resamples. Table 4 presents the path coefficients (β), t-values, p-values, effect sizes (f^2), and adjusted R^2, alongside predictive relevance (Q^2) values. To further assess the strength, stability, and predictive capability of the structural relationships, bootstrapping with 5,000 resamples was employed. As shown in Table 4, all hypothesized paths in the pooled model are statistically significant at $p < 0.01$. Human capital exerts a strong effect on social capital, while social capital shows a substantial effect on community wellbeing. The direct effect of human capital on wellbeing is comparatively smaller, yet remains statistically meaningful, indicating partial mediation. Adjusted R^2 values for both endogenous constructs are high, and positive Q^2 values derived from blindfolding confirm adequate predictive relevance. Together, these indicators demonstrate that the model not only explains past variation but also possesses satisfactory out-of-sample predictive capability.

Tabel 4. Inner Model Evaluation

Relationship	*β*	*t*	*p*	*f^2*	*R^2_adj*	*Q^2*
HC → SC	0.64	9.32	0.000	0.38	0.45	0.27
SC → WB	0.58	8.14	0.000	0.41	0.55	0.33
HC → WB	0.29	3.47	0.001	0.15	—	—
Overall (Lombok Kulon)	—	—	—	—	0.56	0.31
Overall (Sidomulyo)	—	—	—	—	0.63	0.36

Note. All paths were significant at $p < 0.01$, and $Q^2 > 0$ confirmed predictive relevance.

Village-Level Effect Sizes and Predictive Relevance

Disaggregated analysis by village (Table 5) reveals important contextual differences. In Lombok Kulon, human capital exhibits a stronger incremental effect on social capital than in Sidomulyo, reflecting the importance of collective learning and cooperation within the cooperative farming system. Conversely, the direct effect of human capital on wellbeing is stronger in Sidomulyo than in Lombok Kulon, consistent with a more market-oriented and individualized livelihood structure. Q^2 values for both social capital and wellbeing exceed zero in both villages, confirming predictive relevance across contexts. Notably, Sidomulyo exhibits slightly higher Q^2 for wellbeing, suggesting that human and social capital more directly translate into perceived welfare outcomes in the tourism-oriented economy.

Mediating Role of Social Capital

The mediating role of social capital in the relationship between human capital and community wellbeing was assessed using bootstrapped indirect effects (5,000 resamples). The indirect effect HC → SC → WB is statistically significant ($\beta = 0.37$, $p < 0.001$), indicating that social capital mediates the influence of human capital on wellbeing. When examined by the village, the magnitude of this indirect effect is higher

in Lombok Kulon than in Sidomulyo, reflecting stronger reliance on social relationships in channeling human capital into wellbeing in the collective farming context. In Sidomulyo, the indirect effect is still significant but smaller, consistent with the presence of a stronger direct HC → WB path.

Tabel 5. Inner-Model Diagnostics (Effect Sizes f^2 and Predictive Relevance Q^2) by Village

Relationship / Endogenous	*Lombok Kulon f^2*	*Sidomulyo f^2*
HC → SC	0.35	0.21
SC → WB	0.42	0.31
HC → WB	0.09	0.17
Q^2 (SC)	0.312	0.284
Q^2 (WB)	0.375	0.401

Note. f^2 values quantify the incremental impact of a predictor on an endogenous construct (0.02/0.15/0.35 ≈ small/medium/large). Q^2 from blindfolding indicates predictive relevance (values > 0 are desirable).

Multi-group Analysis and Contextual Differentiation

Measurement invariance was evaluated prior to multi-group comparison using the MICOM procedure. Configural and compositional invariance were supported, and partial invariance was established for equality of means and variances, allowing for meaningful group comparisons. The Multi-Group Analysis (MGA) results are summarized in Table 6. Statistically significant path differences were observed in HC → SC, SC → WB, and HC → WB between Lombok Kulon and Sidomulyo. However, beyond statistical significance, these differences offer key practical insights into community-specific dynamics. In Lombok Kulon, the stronger HC → SC path suggests that improvements in human capital (e.g., Education, Training, Skill) translate more effectively into enhanced social capital (e.g., Trust, Norms, Networks). This indicates that development interventions in Lombok Kulon may benefit from capacity-building initiatives that leverage local human potential to foster collective action.

In contrast, the HC → WB path is stronger in Sidomulyo, implying that human capital has a more direct impact on individual well-being. Here, strengthening human capital may yield more immediate individual-level outcomes, such as improved livelihood, health, or satisfaction. The SC → WB path also differs between groups, although both are positive and significant. This suggests that while social capital contributes to well-being in both contexts, the strength of this influence varies, potentially due to differing community structures or values. These differentiated patterns highlight the importance of tailoring rural development strategies to local conditions. A one-size-fits-all approach would overlook these context-sensitive mechanisms, underscoring the value of multi-group analysis in informing more grounded and effective policy design.

Qualitative data from semi-structured interviews, focus group discussions, and participatory observations were used to contextualize and validate the quantitative findings. Twenty-four informants (12 from each village) representing farmers, cooperative leaders, tourism entrepreneurs, community organizers, and local officials participated.

Tabel 6: MICOM and Multi-group Analysis Results

Stage	*Result*	*Interpretation*
Configural Invariance	Supported	Same measurement structure across groups
Compositional Invariance	Supported (r = 0.985, p > 0.05)	Equal construct composition
Equality of Means/Variances	Partially supported	Minor group differences
MGA (Δβ)	HC→SC = 0.14 (p_diff = 0.03); SC→WB = 0.12 (p_diff = 0.04); HC→WB = –0.24 (p_diff = 0.01)	Significant path differences between groups

Qualitative Integration and Validation

Thematic analysis identified recurring themes related to training experiences, trust and reciprocity, participation in collective activities, and perceived changes in wellbeing. These themes were aligned with the three latent constructs in the model (HC, SC, WB). An audit trail, member checking, and peer debriefing were employed to enhance the credibility of the qualitative analysis.

Joint Display of Quantitative and Qualitative Findings

Table 7: Mixed-methods joint display linking H1–H4 with qualitative themes

Quantitative Hypothesis (β, p)	*Supporting Qualitative Themes / Illustrative Quotes*
H1 (HC → SC = 0.64, p <0.001)	"After training, farmers now discuss and decide together; knowledge from workshops strengthens our cooperation." — (Lombok Kulon, male, 45 yrs)
H2 (SC → WB = 0.58, p <0.001)	"We feel safer and happier because everyone helps each other during planting and harvest." — (Lombok Kulon, female, 50 yrs)
H3 (HC → WB = 0.29, p <0.01)	"Skills from tourism training increase income; when visitors are satisfied, families benefit." — (Sidomulyo, male, 38 yrs)
H4 (Mediation HC → SC → WB, β_indirect = 0.37, p <0.001)	"We learn from each other, not alone; our success depends on how we trust and work together." — (Lombok Kulon, female, 47 yrs)

Note: Qualitative convergence reinforces the mediating role of social capital: cooperative learning and trust networks in Lombok Kulon amplify human-capital effects, while individual skill diversification in Sidomulyo complements income gains but weakens communal cohesion.

To illustrate convergence between quantitative and qualitative results, a joint display was constructed (Table 7). This table aligns key hypotheses (e.g., H1–H4) with corresponding qualitative themes and selected quotations. For example, statements from Lombok Kulon farmers describing how joint training strengthened cooperation support the HC → SC relationship, while narratives emphasizing mutual help and shared satisfaction during agricultural activities support the SC → WB relationship. In

Sidomulyo, quotations highlighting the role of tourism training in increasing household income support the direct HC → WB path. Overall, the joint display confirms that qualitative insights not only corroborate the direction and significance of the structural paths but also illuminate the mechanisms through which different forms of capital are mobilized in distinct socio-economic contexts.

Discussion

The findings of this study confirm that social and human capital are mutually reinforcing assets that shape community wellbeing in rural Indonesia, but how they operate is highly context-dependent. In both Lombok Kulon and Sidomulyo, higher levels of education, skills, and training are associated with stronger trust, participation, and community networks, which in turn support better livelihood and wellbeing outcomes. This reinforces the broader argument that social and human capital jointly underpin sustainable rural livelihoods (Auliah *et al.*, 2024; Lu, Xu and Zhang, 2021; Ringwood and Watson, 2024).

Social and Human Capital as Interdependent Drivers of Wellbeing

The SEM-PLS analysis, further supported by Multi-Group Analysis (MGA), confirms that social capital plays a central role in translating human capital into enhanced community wellbeing, although this relationship varies across contexts. In Lombok Kulon, where cooperative farming and group-based marketing are predominant, human capital is more effectively integrated into the social fabric of the community. Skills and knowledge obtained through education and training are mobilized collectively through institutional structures such as farmer groups and cooperatives. These mechanisms foster an environment where trust and reciprocity facilitate the transformation of individual competencies into community-wide benefits. This finding aligns with prior research, which highlights that social cohesion significantly amplifies the developmental potential of human capital (Sadowski and Wojcieszak, 2019; Wang *et al.*, 2015; Yi, Xixi and Lu, 2022).

In this collective setting, social capital not only mediates but also enhances the value of human capital. The embeddedness of human capital in group processes, such as joint marketing and collaborative certification, ensures that individual gains are shared and reinvested into the community. This reinforces the Community Capitals Framework's proposition that social systems provide the infrastructure through which other forms of capital are activated and sustained.

By contrast, Sidomulyo demonstrates a different dynamic. Here, the direct role of human capital in improving wellbeing is more pronounced, reflecting the individualized nature of livelihoods in a tourism-driven economy. Skills in service provision, marketing, and entrepreneurship translate more immediately into household-level outcomes. Although social capital continues to contribute to community wellbeing, its role is more supportive than central. This aligns with findings from other rural tourism contexts, where competitive pressures and market incentives tend to prioritize individual agency over collective organization (Faisal *et al.*, 2023; Xu, Barbieri and Seekamp, 2020).

Overall, the comparison underscores that interactions between social and human capital are not uniform but are highly contingent on local economic structures and institutional arrangements. In Lombok Kulon, human capital is embedded in and mediated by social institutions, leading to broader communal benefits. In Sidomulyo, human capital drives wellbeing more directly through entrepreneurial efforts, with social capital playing a complementary but less integrative role. These patterns suggest the need for nuanced rural development strategies that align with the social and economic realities of each context.

Collective versus Market-Oriented Pathways

The comparison between Lombok Kulon and Sidomulyo demonstrates how economic orientation shapes the role of human and social capital in rural development. Lombok Kulon, with its cooperative organic farming model, leverages social capital as a foundation for collective action. Formal structures like cooperatives and shared certification processes enable the transformation of individual skills into shared community benefits. In this setting, social capital acts as the key conduit that links human capital to well-being, emphasizing the importance of trust-based governance and inclusive participation (Dong and Khan, 2023; Giango *et al.*, 2022).

Conversely, Sidomulyo operates within a more market-oriented and hybrid system, where agritourism and diverse service-based activities dominate. Human capital, especially entrepreneurial skills, directly enhances household wellbeing through income generation. Social capital remains relevant but plays a supporting role, as networks are more externally focused, connecting with traders, tourists, and suppliers. These external linkages expand opportunities but also increase the risk of exclusion and social fragmentation (Faisal *et al.*, 2023; Rahmawati *et al.*, 2024; Rahut and Scharf, 2012).

The differing patterns suggest that development outcomes are shaped not only by capital availability but also by institutional design. In Lombok Kulon, collective arrangements buffer economic risks and distribute gains broadly, reinforcing cohesion. In Sidomulyo, greater access to markets and capital may intensify inequalities unless inclusive governance is present. Thus, effective development strategies must align with the local economic model—strengthening social institutions in collective contexts and embedding equity safeguards in market-driven systems.

Gendered and Intersectional Dimensions of Capital

Although not explicitly modeled as a structural variable, gender emerges as a critical enabling factor in the way human and social capital operate within both village contexts. Survey data show that male household heads dominate the sample in Lombok Kulon (62%) and Sidomulyo (58%). Yet, qualitative findings highlight that women play indispensable roles in shaping pathways to wellbeing—roles that differ in form but are equally vital across the two villages.

In Lombok Kulon, where social capital is a strong mediator between human capital and wellbeing, women contribute extensively through cooperative participation, savings groups, and informal mutual-aid networks. These activities sustain social cohesion,

facilitate knowledge exchange, and buffer economic risks, effectively reinforcing the HC → SC → WB pathway. Women's relational labor, though often informal, serves as a key structural support for collective resilience (Abdollahzadeh and Sharifzadeh, 2014; Dong and Khan, 2023).

In Sidomulyo, women contribute primarily through direct economic participation in the tourism sector. Their involvement in managing homestays, culinary services, and crafts demonstrates the translation of human capital into livelihood gains, supporting the significant HC → WB link. However, because the market-oriented context relies more on individual mobility, women's access to training, capital, and networks becomes a decisive factor. This underscores how the intersection of gender with other dimensions, like education or asset ownership, can either enhance or restrict women's agency.

These empirical insights affirm that women are not peripheral to rural development processes. Rather, their participation—whether through social or entrepreneurial pathways—underpins the stability and inclusivity of community wellbeing systems. Gender-responsive programs that strengthen women's access to resources, leadership roles, and skills development are therefore essential to sustaining both collective and market-oriented rural transformations.

Governance, Institutions, and Policy Frameworks

The role of institutions emerges as a further explanatory layer shaping how capital forms interact. In Lombok Kulon, agricultural extension services, certification bodies, and BUMDes/cooperative governance provide structured arenas for participation and capacity-building. Such arrangements are consistent with arguments that participatory institutions and co-management frameworks enhance trust, legitimacy, and long-term sustainability (Hwang and Stewart, 2017; Lang and Fink, 2019; Sarjiyanto, 2022). Where decision-making is transparent and communities have genuine agency, human capital is more likely to be mobilized in collective projects, reinforcing social capital.

Sidomulyo's experience highlights the limits of top-down or externally driven interventions. Partial reliance on external investors and government-led tourism programs can generate economic gains but may also produce governance asymmetries, particularly when local actors are not fully involved in agenda-setting and benefit-sharing (Amran, Ma and Ritonga, 2022; Hu, Yao and Xiong, 2023). This suggests that institutional design—not just the presence of programs—matters for whether social and human capital are translated into broad-based wellbeing.

Theoretical Contributions

This study offers three key theoretical contributions. First, it advances debates on social and human capital by empirically demonstrating that the strength and structure of the HC → SC → WB pathway are context-dependent, shaped by economic orientation and institutional arrangements. The findings show that social capital's mediating role is more pronounced in cooperative agrarian systems than in individualised tourism economies (Auliah *et al.*, 2024; Lu, Xu and Zhang, 2021; Prayitno *et al.*, 2025b), challenging the notion of social capital as a universally beneficial asset.

Second, by framing the analysis within the Community Capitals Framework and the Sustainable Livelihoods Approach, the study underscores the interdependence of human and social capital as elements of a broader capital system influenced by governance, market dynamics, and cultural norms (Flora, 2016; Ringwood and Watson, 2024; Scoones, 1998). The application of a comparative SEM-PLS model and multi-group analysis offers a structured, empirical lens to examine interactions often addressed only conceptually.

Third, the mixed-methods design enriches statistical findings by incorporating community narratives that reveal how training, trust, and cooperation are perceived and practiced. This integration of quantitative modelling with qualitative insights responds to ongoing calls for more holistic, context-sensitive approaches in sustainability research (Brugulat-Panés *et al.*, 2023; Martin *et al.*, 2022).

Practical and Policy Implications

The findings yield distinct policy implications tailored to the development trajectories of collective agrarian and market-oriented rural systems. In contexts similar to Lombok Kulon, strengthening cooperatives, farmer groups, and BUMDes is critical for transforming human capital into community-wide gains. Evidence from Bangelan Village, Indonesia, shows that cooperatives improve market access and economic coordination (Auliah *et al.*, 2024), while successful BUMDes across Java have enhanced service delivery and reduced rural poverty (Sarjiyanto, 2022). Programmes should combine technical training (e.g., organic farming, certification, business planning) with trust-building and participatory governance. For instance, Nepal's agricultural extension model—which combines technical guidance with participatory learning—offers a replicable example of effective capacity building (Auliah *et al.*, 2024; Thapa *et al.*, 2019). Similarly, community certification programs in Thailand illustrate how targeted capacity development can simultaneously improve product quality and promote inclusivity (Ditta-Apichai, Kattiyapornpong and Gretzel, 2020).

In market-oriented tourism villages such as Sidomulyo, policy interventions should focus on reducing income disparities and mitigating social fragmentation. Programmes that strengthen entrepreneurial capacity, support the formation of inclusive tourism associations, and institutionalise benefit-sharing mechanisms are critical to ensuring that tourism growth does not disproportionately benefit a limited group of actors. Certification and targeted training initiatives—such as those implemented within Thailand's community-based tourism networks—demonstrate how capacity development can enhance product quality while simultaneously improving access to niche markets and promoting broader participation (Ditta-Apichai, Kattiyapornpong and Gretzel, 2020).

Across both market-oriented and collective village contexts, cross-cutting policies should prioritise women's education, youth engagement, and multi-stakeholder collaboration as foundations of long-term rural resilience. Evidence from community network initiatives in Africa highlights how inclusive governance arrangements and gender-sensitive programming can strengthen social cohesion, foster innovation, and improve adaptive capacity (Brugulat-Panés *et al.*, 2023). Together, these examples

indicate that sustainable rural wellbeing is shaped not only by income growth but also by the strength of the social and cognitive infrastructures that enable communities to act collectively and equitably.

Conclusion

This study demonstrates that social and human capital operate as interdependent drivers of community wellbeing in rural Indonesia, but the strength and nature of these relationships depend on local economic and institutional configurations. Using a comparative mixed-method design and PLS-SEM with multi-group analysis, the study finds that human capital consistently enhances social capital, and social capital strongly predicts community wellbeing in both sites. However, the pathways differ across contexts: in Lombok Kulon's collective organic farming system, social capital fully mediates the influence of human capital on wellbeing, while in Sidomulyo's market-oriented agritourism system, human capital has both direct and indirect effects.

Theoretically, the study advances social and human capital scholarship by demonstrating that the HC → SC → WB pathway is context-contingent, shaped by governance structures, livelihood systems, and relational norms. It also contributes to the Community Capitals Framework and Sustainable Livelihoods Approach by providing empirical evidence that the effectiveness of human capital depends on the strength and inclusivity of local social systems. Methodologically, the integration of PLS-SEM, multi-group analysis, and qualitative validation offers a robust approach for examining complex livelihood pathways in rural development research.

Practically, the findings underscore the need for context-sensitive development strategies. In cooperative agrarian settings, strengthening farmer institutions, group-based learning, and participatory governance can amplify the collective benefits of education and training. In tourism-based economies, policies should focus on reducing inequality, supporting small entrepreneurs, and fostering inclusive associations to ensure that human capital gains translate into broad-based wellbeing. Across both village types, gender-sensitive training, youth engagement, and social infrastructure development emerge as critical components for enhancing rural resilience and long-term sustainability.

Overall, the study highlights that sustainable rural wellbeing is not determined solely by economic diversification or market access, but by the quality of social cohesion and the effective mobilisation of human capabilities within community structures.

Limitations and Future Research

Despite its contributions, this study has several limitations. First, the cross-sectional design limits the ability to capture temporal dynamics in the evolution of social and human capital, especially in rapidly changing rural tourism and agricultural systems. Longitudinal studies would provide deeper insights into how capital configurations and well-being outcomes shift over time. Second, the reliance on self-reported measures introduces potential biases, including social desirability bias and recall error. Although qualitative validation helps mitigate these concerns, future research should incorporate

behavioural or administrative data (e.g., cooperative records, enterprise performance metrics) to strengthen measurement accuracy. Third, the two case study villages, while analytically rich, represent specific contexts in East Java. Their findings may not fully capture the diversity of Indonesia's rural systems. Comparative studies across more varied agro-ecological and tourism landscapes, including Eastern Indonesia or peri-urban transformation zones, would enhance the generalisability of the model. Fourth, while PLS-SEM is appropriate for exploratory and mediation models, it does not capture complex feedback loops or reciprocal relationships among capitals. Future studies may employ hybrid approaches such as agent-based modelling, fsQCA, or multilevel SEM to explore interactions across individual, household, and institutional levels.

Finally, this study focused on three capitals—social, human, and well-being-related dimensions. Integrating additional capitals (e.g., natural, financial, and physical capital) within a unified analytical framework would provide a more holistic understanding of rural sustainability pathways in line with the Sustainable Livelihoods Approach.

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Authors' Declarations and Essential Ethical Compliances

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	*Author 1*	*Author 2*	*Author 3*	*Author 4*	*Author 5*	*Author 6*	*Author 7*
Conceived and designed the research or analysis	Yes	Yes	No	Yes	No	No	No
Collected the data	Yes	No	Yes	No	Yes	No	No
Contributed to data analysis & interpretation	Yes	Yes	No	No	No	No	No
Wrote the article/paper	Yes	Yes	No	No	No	No	No
Critical revision of the article/paper	No	No	Yes	No	No	No	No
Editing of the article/paper	Yes	No	Yes	No	No	No	No
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Project Administration	Yes	No	No	No	Yes	No	No
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Overall Contribution Proportion (%)	35	20	15	10	5	5	5

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The author(s) solemnly declare(s) that this research has not involved any human subject (body or organs) for experimentation. It was not clinical research. The contexts of human population/participation were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of Helsinki Declaration does not apply in cases of this study or written work.

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PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
The author(s) has/have NOT complied with PRISMA standards to an extent.

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To see original copy of these declarations signed by Corresponding/First Author (on behalf of other co-authors too), please download associated zip folder [Declarations] from the published Abstract page accessible through and linked with the DOI: https://doi.org/10.33002/nr2581.6853.080324.

INFORMATION AND CONSENT FORM FROM RESPONDENTS
(Non-Indigenous Respondents)
This form was translated into local language for the respondents

Title of the Research: Human Capital, Social Capital, and the Sustainability of Rural Communities: An Empirical Examination in Rural Indonesia

Principal Researcher: Prof. Gunawan Prayitno
Department of Urban and Regional Planning
Faculty of Engineering, Universitas Brawijaya
Malang, Indonesia

A) INFORMATION TO PARTICIPANTS

1. Objectives of the research
The objectives of this study were to understand how people in the villages of Sidomulyo and Lombok Kulon use their skills, knowledge, and social relationships to support their livelihoods, well-being, and the sustainability of their communities.

2. Participation in research
The researcher will ask you several pertinent questions. This interview will be recorded in written form and should last about 50-60 minutes. The location and timing of the interview will be determined by you, depending on your availability and convenience.

3. Risks and disadvantages
There is no particular risk involved in this project. You may, however, refuse to answer any question at any time or even terminate the interview.

4. Advantanges and benefits
You will receive intangible benefits even if you refuse to answer some questions or decide to terminate the interview. You will also contribute to a better understanding of how people in rural communities work together and use their skills to support daily life and village sustainability.

5. Confidentiality
Personal information you give us will be kept confidential. No information identifying you in any way will be published. In addition, each participant in the research will be assigned a code and only the researcher will know your identity.

6. Right of withdrawal
Your participation in this project is entirely voluntary and you can at any time withdraw from the research on simple verbal notice and without having to justify your decision, without consequence to you. If you decide to opt out of the research, please contact the researcher at the telephone number or email listed below. At your request, all information concerning you can also be destroyed. However, after the outbreak of the publishing process, it is impossible to destroy the analyses and results on the data collected.

B) CONSENT

Declaration of the participant

- ⇨ I understand that I can take some time to think before agreeing or not to participate in the research.
- ⇨ I can ask the research team questions and ask for satisfactory answers.
- ⇨ I understand that by participating in this research project, I do not relinquish any of my rights, including my right to terminate the interview at any time.
- ⇨ I have read this information and consent form and agree to participate in the research project.
- ⇨ I agree that the interviews be recorded in written form by the researcher: Yes ( ) No ( )

Signature of the participant : _____ Date : _____

Surname : _____ First name : _____

Researcher engagement

I explained to the participant the conditions for participation in the research project. I answered to the best of my knowledge the questions asked and I made sure of the participant's understanding. I, along with the research team, agree to abide by what was agreed to in this information and consent form.

Signature of the researcher : Date : 15-03-2024

Surname: Prayitno First name: Prof. Gunawan

- ⇨ Should you have any questions regarding this study, or if you wish to withdraw from the research, please contact the Principal Investigator, Prof. Gunawan Prayitno, by email at gunawan_p@ub.ac.id

- ⇨ If you have any concerns about your rights or about the responsibilities of researchers concerning your participation in this project, you can contact the may contact the Research Ethics Committee of Universitas Brawijaya.